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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/701,705	12/01/2000	Yukihiko Okumura	15689.61	7195

7590 12/10/2009
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EXAMINER

GHULAMALI, QUTBUDDIN

ART UNIT	PAPER NUMBER
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2611

MAIL DATE	DELIVERY MODE
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12/10/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No. 09/701,705	Applicant(s) OKUMURA ET AL.	
Examiner Qutbuddin Ghulamali	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 27 July 2009.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-2, 4-6, 8, 18-20, 22-23, 33-37, 47, 49 and 53-85 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 1, 2, 4-6, 8, 18-20, 22, 23, 33-35, 37, 47 and 54-85 is/are allowed.
- 6) Claim(s) 36, 49 and 53 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

1. This office action is responsive to amendment filed 7/27/2009.
2. Applicant's amendment to claims 62 and 78 acknowledged and accepted.

Response to Remarks/Amendment

3. Applicant's remarks/amendment, filed 7/27/2009, with respect to claims 1-2, 4-6, 8, 18-20, 22-23, 33-37, 47, 49 and 53-85 has been fully considered and as a result claims 1-2, 4-6, 8, 18-20, 22-23, 33-35, 37, 47 and 54-85 are now indicated allowable. As a result of further search and consideration indication of allowability by the office of claims 36, 49 and 53 has regrettably been withdrawn in view of newly found art. The rejection follows.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 36 and 49 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Jasper et al (USP 5,519,730).

Regarding claims 36 and 49, Jasper et al discloses a channel estimation method for calculating a channel estimation value of data symbols of a data channel using pilot

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symbols of a pilot channel that was parallel multiplexed together with said data channel (fig. 1, col. 4, lines 14-26), comprising:

dividing (splitting) the data symbols of said data channel into a plurality of data symbol sections (processing unit (102) receives an original information (data) signal (101), converts each serially received 16 into 4 parallel signal paths), selecting (using) pilot symbols appropriate for calculating the channel estimation value of the data symbols in each of the data symbol sections (col. 4, lines 16-21, 35-38), and generating weighting factors to be used for weighting and averaging the pilot symbols which vary (offset) from data symbol section to data symbol section in a slot (col. 7, lines 23-65; col. 8, lines 21-29, 54-67; col. 9, lines 1-12; col. 6, lines 37-62); and weighting and averaging said pilot symbols using said weighting factors (coefficients) and calculating the channel estimation value of the data symbols in each of the data symbol sections (col. 7, lines 23-65; col. 8, lines 21-29, 54-67; col. 9, lines 1-12).

As per setting rates of data channel and pilot channel, that is to set them equal or different given the information as in Jasper of pilot insertion and pilot symbol sequences resulting in pilot rate increase for various sub-channels, is a matter of obvious choice a person of ordinary skill in the art at the time of invention would have made to arrive at data rate different from the transmission rate of pilot channel to anticipate the invention.

6. Claim 53, is rejected under 35 U.S.C. 103 (a) as being unpatentable over Abeta (USP 6,647,003) in view of Jasper et al (USP 5,519,730).

Regarding claim 53, Abeta discloses a demodulating device comprising:

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channel estimating means for deriving N (N is natural number greater than or equal to two) in number of channel estimation values (col. 14, lines 10-18);

compensating means for compensating data sequences using said respective channel estimation values (col. 2, lines 3-8, 39-48);

RAKE combining means for RAKE combining respective of said N data sequences after compensation (col. 8, lines 29-43); and

reliability judgment (highly accurate, accuracy) means for selecting one data sequence having highest reliability from said N data sequences after RAKE combination (col. 9, lines 5-13). Abeta does not explicitly disclose channel estimation values by weighted averaging of pilot signals in time using weighted sequences. However, Jasper in a similar field of endeavor discloses weighting and averaging said pilot symbols using said weighting factors (coefficients) and calculating the channel estimation value of the data symbols in each of the data symbol sections (col. 7, lines 23-65; col. 8, lines 21-29, 54-67; col. 9, lines 1-12). It would have been obvious to a person of ordinary skill in the art at the time of invention to use weighting and averaging of pilot signals in time using weighted sequences as taught by Jasper in the system of Abeta because it would allow a receiver to utilize weighting and averaging pilot symbols using weighting factors (coefficients) to be utilized to interpolate both over time and over frequency to allow for channel compensation of the original information (data) signals.

Allowable Subject Matter

7. Claims 1-2, 4-6, 8, 18-20, 22-23, 33-35, 37, 47, 54-85 allowed.

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Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutbuddin Ghulamali whose telephone number is (571)-272-3014. The examiner can normally be reached on Monday-Friday, 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QG.
December 4, 2009.

/CHIEH M FAN/
Supervisory Patent Examiner, Art Unit 2611